# VISUAL SIMULATION

## A new low-cost visual for trainers/simulators

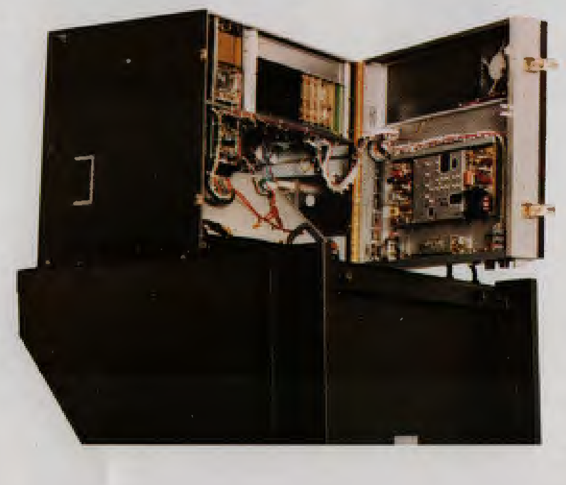
# Visual systems in pilot-training environments.

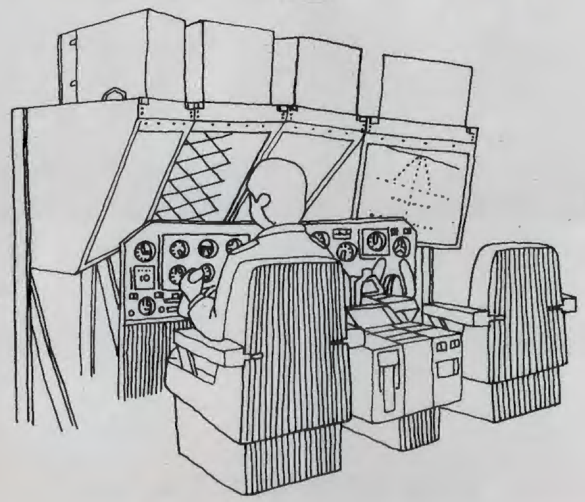
Does your ground-based training equipment have the benefits of visual operation? A visual simulator can correctly incorporate lighting, atmospheric and scenic effects – terrain and runway operation for day, dusk or night. Naturally, a valuable addition for civil/ business and military training, with facility for fixed wing and helicopter flying.

In Commercial Airline operations, the value of simulators with visual systems have been accepted for many years. Latterly complex computer-driven systems have been installed, but unfortunately, these systems have been extremely expensive and their purchase and use could not be justified in many instances, while current CIG systems are difficult to adapt to analogue simulators.

The OPDIS IV (C) system has an inherent six-degree of freedom motion, and is capable of fitting to most simulators/trainers.

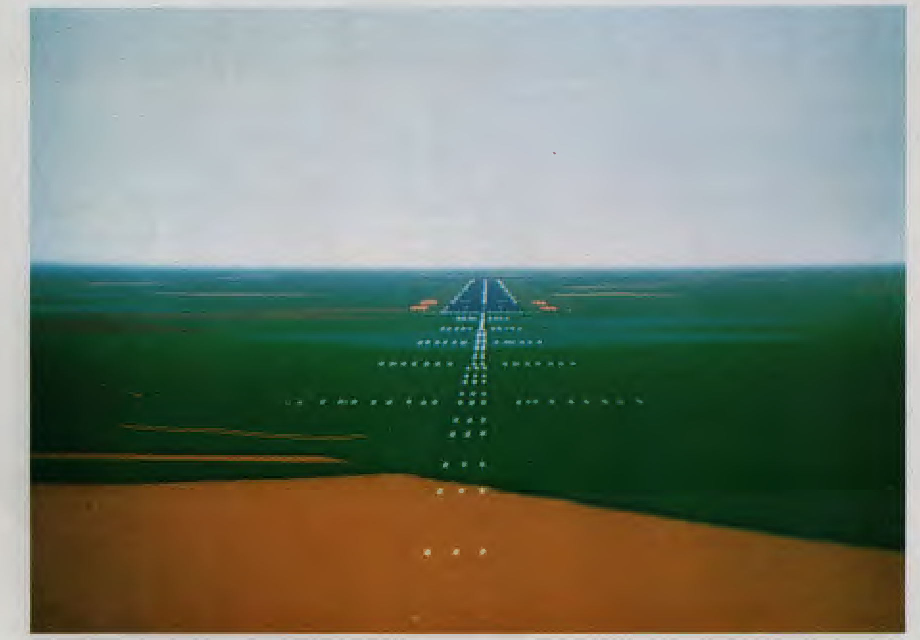
The system will permit all the above and is available in multi-window configuration to give wrap-round vision.



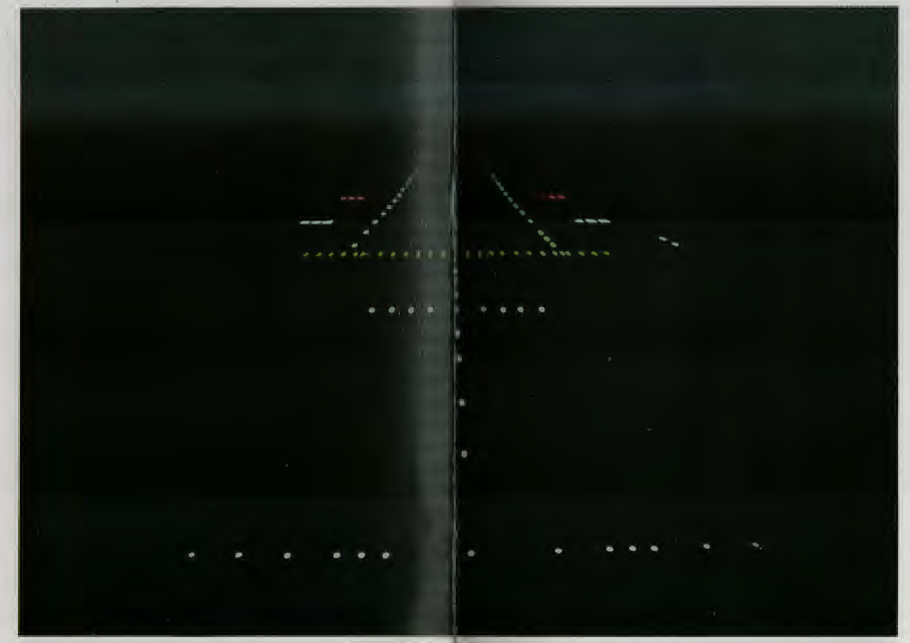


Fitting the visual system to your present trainer allows both basic and advanced effects, subject to host limitations: control in straight and level flight with co-ordinated turns, climbs and descent, or over cross-country. Hazardous situations, too, can be simulated – engine failure; landing short, flapless, crosswind; forced landing, with appropriate checks for taxi, hold and take-off, for circuit and downwind. (Rejoining). Conditions requiring specialised techniques may also be set up for your own field training – including asymmetric flight; low visibility operation and transition to visual on instrument approach.

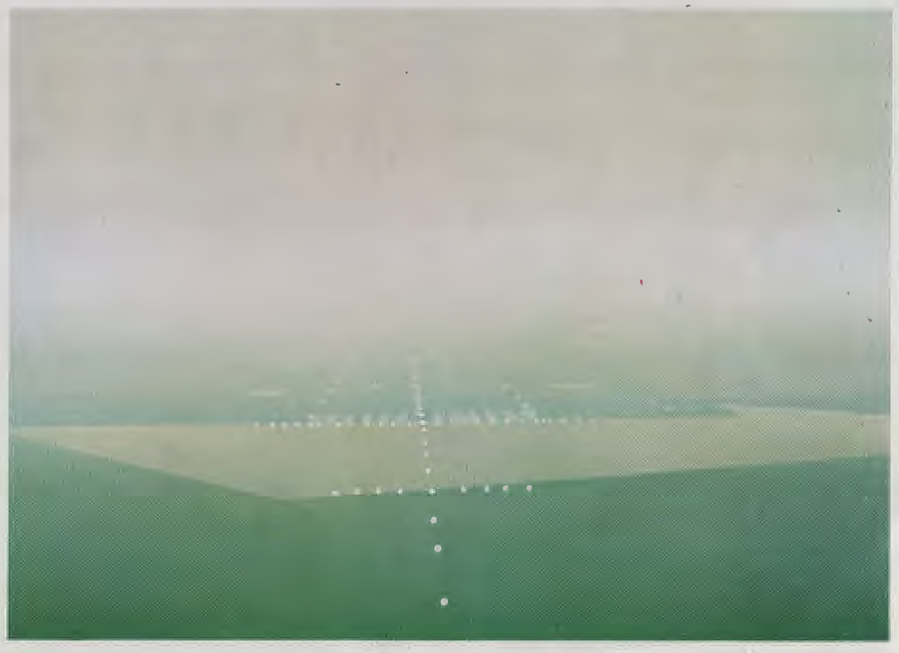
Interested? Simply tell us your make/type of simulator or trainer and the type of usage you are considering. It is possible to negotiate a total package deal, or save cost by doing some of the installation work yourself.



Daylight situation



Night situation



Poor visibility situation

# Technical description and specification

The standard equipment offers:

**Terrain:**
10 by 10 N.M. (19 by 19 Km) made up from an irregular array of rectangles.
Four different terrain patterns user selectable.
Three sets of four terrain colours user selectable.
Haze blanks end of computed terrain to remove undesired effects, and assist sense of distance.

**Runway:**
Two runways accessible, one standard, one to smaller, simpler pattern on user specification.
Standard 150 ft wide, 9600 ft long, with threshold, centreline and TDZ markings, two taxiway stubs.
The runway is at an angle to the terrain squares to remove directional effects.

**Lighting:**
Edge lighting.
Centre line lighting.
Green threshold bar.
Red overrun bar.
Coded centreline plus 5 cross bars approach.
VASIS.
Intensity under user control.

**Cloud:**
Base: 0-2700 ft.
Top: Base – 10,000 ft.
Scud: User selectable.
Ability to fly above cloud, blue sky overhead.

**Visibility:**
Both slant and RVR are provided, with ranges Zero-max system visibility.
Day-Dusk-Night operation, with suitable horizon glow for night work.
No limitations on Yaw, Pitch, Roll angles.
Can operate up to Mach 2.
Raster scan system, with high scan rate.

**Construction:**
Image generator is mounted in freestanding 19″ standard cabinet.

**Multi-window facilities:**
The system can be supplied for wrap-round display. Normally pilot and co-pilot have the same image, and additional windows can be mounted to the left and right to extend the viewing angle.

**Power consumption:**
A 4-window system consumes less than 1500 watts, single-phase supply.

**Input:**
Either a digital link or a purpose-built analogue interface can be supplied.

**Options**
A fully digital high capability Navigation System can be integrated and interfaced to replace less efficient systems, or to provide full airline navigation facilities on new equipment.

**Display**
Infinity-collimated display, using spherical mirror and beam splitter, with high resolution 26 inch (67 cm) shadow mask tube.

| Viewing Angles: | Horizontal | Vertical |
|---|---|---|
| Instantaneous | ±22° | +12° −15° |
| Maximum | ±23° | ±17° |

Clearance from preferred pilot position to beam splitter, horizontally, 36″/920mm.
Multiple displays can be supplied for wide-angle systems.

**OPERATIONAL DISPLAYS DIVISION**

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